

# PATENT SPECIFICATION

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## (54) COMMUNICATOR AND EDUCATIONAL AID

(71) I, TOM PARRY, a British Subject, of 1 Church Avenue, Bangor Is-y-Coed, near Wrexham, LL13, 0AF, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention concerns a communicator and educational aid.

As is well known, there are considerable difficulties (hitherto considered to be almost insurmountable) in establishing communication with severely-handicapped dumb persons having little or negligible capability for physical movement. Such a handicapped person or patient often cannot communicate his needs, and persons nursing or caring for such a patient can usually only minister to his needs by guesswork or trial and error. In many instances the nurse cannot even tell whether or not he is understood and/or whether or not his ministrations are required or appreciated.

An object of the present invention is to provide a communicator, which can be used also as an educational aid, if desired, by means of which a handicapped dumb patient can communicate his needs.

With this object in view, the present invention provides a communicator, suitable for use by a handicapped dumb patient for communicating his needs, and also, optionally for enabling such a patient to be educated, comprising a display panel bearing designations and/or symbols indicative of various personal requirements, a pointer associated with said designations and/or symbols, a motor for driving said pointer, and a control means permitting controlled operation of the motor, by a patient, to enable him to move the pointer to and bring it to rest selectively in register with said designations and/or symbols to com-

municate his needs and wherein, upon actuation of the control means, the pointer sweeps continuously over the dial, the arrangement being such that the pointer comes to rest upon discontinuance of operation of the control means.

The motor is preferably a variable speed motor enabling its speed of driving the pointer to be varied according to the patient's aptitude for bringing the pointer to rest in register with selected designations and/or symbols.

The control means may comprise a microswitch actuable by movement by the patient and connected to the motor by a flexible lead.

For a patient having no significant capability of movement, the control means may comprise a pneumatically operable switch actuated by suction or blowing, a flexible tube being provided for leading to the patient's mouth.

The display panel may be of metal and the designations and/or symbols may be provided as separate elements attachable to the panel, e.g. magnetically.

In order that the invention may be fully understood, it will be described further, by way of example, with reference to the accompanying drawing, in which:—

Fig. 1 is a front view of a preferred embodiment of the communicator of the invention; and

Fig. 2 is a perspective view, to a reduced scale, showing the rear of the communicator of Fig. 1.

As shown in the drawing, a preferred embodiment of the communicator of the invention comprises a display panel 10, which in the illustrated case is square but can be of any practical configuration, to the rear of which is secured a casing 11 which serves as a stand enabling the panel 10 to be stood on a supporting surface such as a table top (not shown) in a stable

near-vertical disposition as shown in Fig. 2.

An electric motor (indicated diagrammatically at 12 in Fig. 2) is accommodated in the casing 11, and this has a shaft 13 projecting through an aperture in the centre of the panel 10 and carrying a radial pointer 14 which sweeps around the front face of the display panel 10 when the motor 12 is energised. The pointer 14 may, if desired, comprise a radially inner part 15 secured to the shaft 13 and having a radially outer part 16 connected thereto, so as to be radially extensible, by means of a pin and slot connection 17, this connection being relatively tight so that the outer part 16 will not slide unintentionally relative to the inner part 15.

A flexible lead 18 enables the motor 12 to be connected to an electrical current supply by way of a rheostat or other suitable motor speed regulator (not visible in the drawing) provided with a knob 19 by which the speed at which the motor 12 will drive the pointer 14 can be adjusted.

Also contained in the casing 11 is a pneumatically-operable switch (not visible) which serves to switch the current to the motor 12 on and off, a flexible tube 20 leading to this switch. The switch can be arranged, as desired, to switch on when a person blows into the tube 20 or sucks thereon, and to switch off when the blowing or sucking is discontinued, or *vice versa*, according to the capability of the patient who will be making use of the communicator. A buzzer, indicated diagrammatically at 21, is mounted in the casing 11.

The front face of the display panel 10 is marked, in the illustrated case, with thirty radial markings 22 of which twenty-nine have associated therewith respective designations indicative of information or of personal requirements, many of these designations also having corresponding explanatory pictorial symbols associated therewith.

These markings 22, together with their respective designations and symbols may be regarded as an outer dial on the display panel 10, with which the pointer 14 will co-operate when such pointer 14 has its outer part 16 fully extended.

Optionally, as shown, twenty-six of the spaces between the markings 22 have respective letters of the alphabet inscribed thereon. The remaining four such spaces may, if desired, have respective symbols, such as arithmetical signs (plus, minus, multiply and divide) inscribed thereon. These symbols may be regarded as an intermediate dial with which the pointer 14 co-operates when the outer part 16 thereof is in an intermediate half-extended position as shown in Fig. 1.

Also optionally, as shown, every third one of the markings 22 has a respective one of the numerals 0 to 9 aligned with its radially inner end. These numerals may be regarded as being an inner dial of the communicator.

Assuming the communicator to have only the outer dial consisting of the markings 22 and the associated designations and symbols, then its utility will be substantially restricted to a patient being able to communicate his personal needs to a nurse or other person tending or caring for him. The communicator will be set up in an appropriate location near the patient and the free end of the tube 20 is then put into the patient's mouth. Upon the patient blowing into the tube (or sucking thereon, as the case may be) the motor 12 is energised to cause the pointer 14 to sweep around the dial until blowing (or sucking) is discontinued, whereupon the pointer stops.

In practical experimental tests, it is found that a dumb patient having virtually no capability of physical movement can readily be shown how to operate the communicator, by example, and the patient very quickly learns to bring the pointer to rest at successive selected ones of the markings 22 to communicate, to his nurse or helper, his personal needs. Thus, for instance, if his television set is on, and he wants it to be switched off, he will cause the pointer 14 to be brought to the marker having the designation "Television" and the symbol of a television set. The nurse or helper will readily understand that switching of the television set is required.

In the illustrated case, the marker marked "Yes" also has the buzzer 21 associated therewith so that when the pointer is brought to the "Yes" position, the buzzer will be energised to give an audible signal. This can be used, therefore, for obtaining the attention of a nurse or helper for instance when the patient develops a need whilst the nurse or helper is out of the room.

It will readily be understood that the various symbols on the front face of the panel 10 provide for the patient to be able to communicate a wide range of personal needs. Those illustrated in Fig. 1 will be self-evident, but of course different designations and/or symbols may be employed as may befit any particular patient.

As has already been mentioned, a patient will very quickly understand how to use the communicator, which permits him to give an indication of his needs in a very simple-to-understand manner. At first, the knob 19 will be set to provide for the pointer to sweep the dial quite slowly, but as the patient's capability improves, the

speed of the motor 12 and the pointer 14 can be correspondingly increased. The range of adjustment may provide, for example, for the speed of the pointer 14 to be selected as desired in the range of from one to thirty revolutions per minute.

In the tests above referred to, it was found to be possible for young hitherto completely-helpless dumb patients, within a few minutes of being introduced to the communicator, to communicate in a practical and understandable way with persons caring for them.

If the communicator is marked with the two further dials above described, embodying the alphabet letters and the numerals, then it can be used not only for the simple communication of the patient's needs, but also as an educational aid by which words, questions, problems and so on can be put by the patient to his nurse or helper or *vice versa*. For using the intermediate and inner dials, the pointer 14 will be appropriately partially or fully extended.

The invention is not confined to the precise details of the foregoing example, and variations may be made thereto. Thus although the described embodiment has a pneumatically-operated switch to enable it to be used by a patient having initially no capability of movement, one could substitute in the place thereof a microswitch on a suitable lead whereby the communicator may be controlled by movement by a patient able to move a limb, finger or toe. Of course, the apparatus may comprise a second control arrangement enabling the motor to be energised and switched off by a nurse or helper, so the patient and the nurse or helper can operate the communicator in turn, e.g. for questions and answers, for educational lessons and like purposes.

To make the communicator particularly universal in its applicability, the display panel 10 may be adapted for replaceable designations and/or symbols to be applied thereto. Thus such designations and/or symbols could be provided on magnetic pieces which will be retained on the display panel, the latter being of mild steel or other suitable material to which the magnetic pieces will adhere.

Thus, for example, particularly, but not exclusively, for educational purposes use can be made of printed cards, each bearing, for example, a complete lesson or part of a lesson these cards each having a central hole, so that selected cards can be fitted to the display panel of the communicator as desired.

WHAT I CLAIM IS:—

1. A communicator, suitable for use by

a handicapped dumb patient, for communicating his needs, comprising a display panel bearing designations and/or symbols indicative of various personal requirements, a pointer associated with said designations and/or symbols, a motor for driving said pointer, and a control means permitting controlled operation of the motor, by a patient, to enable him to move the pointer to bring it to rest selectively in register with said designations and/or symbols, to communicate his needs and wherein, upon actuation of the control means, the pointer sweeps continuously over the dial, the arrangement being such that the pointer comes to rest upon discontinuance of operation of the control means.

2. A communicator as claimed in Claim 1 wherein said display panels also bears designations and/or symbols enabling the patient to be educated.

3. A communicator as claimed in Claim 1 or 2 wherein the designations and/or symbols are in concentric dials, the pointer being adjustable in length to co-operate with a respective one of the dials.

4. A communicator as claimed in Claims 1, 2 or 3 wherein the motor is a variable speed motor enabling its speed of driving the pointer to be varied.

5. A communicator as claimed in any preceding claim wherein the control means comprises a microswitch actuable by movement of the patient.

6. A communicator as claimed in any of Claims 1 to 4 in which the control means comprises a pneumatically-operable switch actuated by suction or blowing.

7. A communicator as claimed in any preceding claim wherein the designations and/or symbols are provided as separate elements adapted for attachment to the display panel as required.

8. A communicator as claimed in Claim 7 wherein the separate elements are adapted for magnetic attachment to the display panel.

9. A communicator as claimed in any preceding claim further including one or more printed cards adapted selectively to be fitted to the display panel.

10. A communicator substantially as hereinbefore described with reference to and as illustrated in the accompanying drawing.

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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of  
the Original on a reduced scale

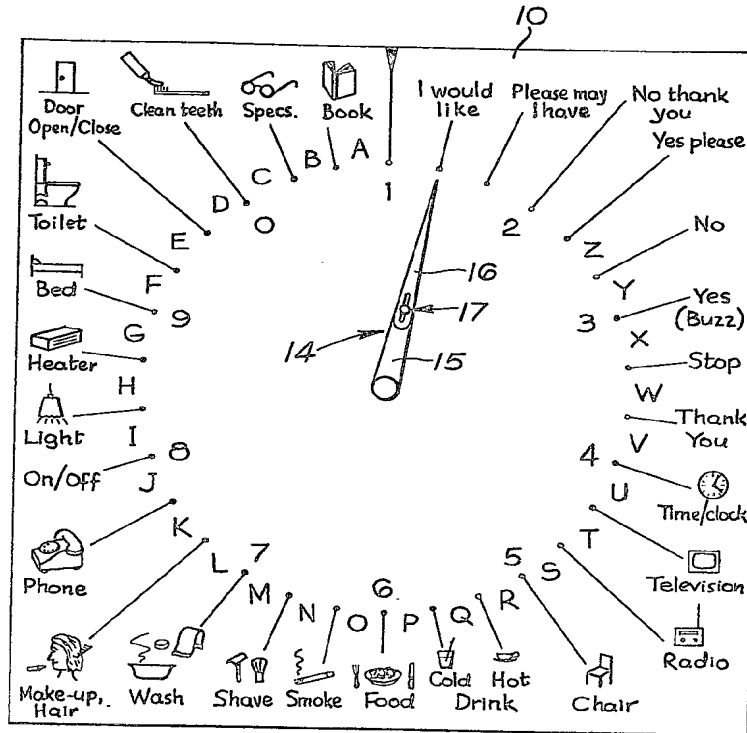


Fig. 1.

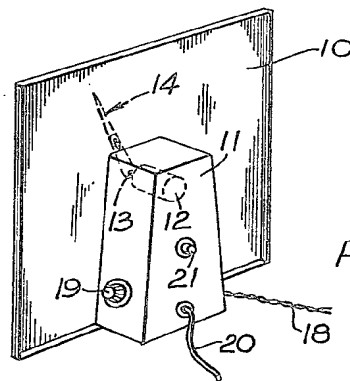


Fig. 2.